INSTALLATION AND OPERATING
INSTRUCTION MANUAL

LCS790

SIREN AMPLIFIER & LIGHT CONTROLLER

US PATENT D574,799

PROUDLY MADE IN THE USA

Star Headlight & Lantern Co., Inc.

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PLIT411 REV. - 9/23/08

MODEL: **LCS790**

AMPLIFIER SERIAL NO: _____

CONTROL HEAD SERIAL NO: _____

ARROWSTICK CONTROL SERIAL NO: _____

Model and serial number located on bottom of unit

INSTALLATION INFORMATION

PURCHASE DATE: _____

INSTALLATION DATE: _____

INSTALLER: _____

DEALER: _____

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NOTICE
Due to continuous product improvements, we must reserve the right to change any specifications and information, contained in this manual at any time without notice. Signal Vehicle Products and/or the manufacturer make no warranty of any kind with regard to this manual, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Signal Vehicle Products and/or the manufacturer shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this manual.

LCS790

Overview

The LCS790 Siren Amplifier is a premium 200W unit designed for single or dual 100W speaker use and full lighting control.

The primary operating modes are Phaser, Yelp, Wail, Hands Free, Manual, Alert, and Radio. A Noise Canceling PA Override and push-button Horn Override are available in all modes. A manual push-button is provided for push-on/push-off tone toggle operation in the Phaser, Yelp, and Wail modes. It also allows manual siren control in the Manual or PA modes. The Phaser function can be optionally replaced by Two-Tone or disabled entirely with programming. Another feature allows cycling through Wail, Yelp, Phaser, and Standby by providing a signal to the horn ring auxiliary wire when the function switch is in the Hands Free (HF) position. A Park Kill option is provided for connection to a door switch, etc. to disable the siren when exiting the vehicle. Radio and PA volume controls are provided on the front panel. Also located on the front panel are two LED's for speaker diagnostics.

This unit additionally contains several distinct controls for operation of vehicle devices. A slide switch allows quick pursuit mode operation. The far right slide position can be set up to activate maximum lights and siren for pursuit mode. There are seven push buttons to control up to seven different lighting or auxiliary functions, or four functions and a traffic director.

The front panel is backlighted with LED's for night visibility. This compact unit utilizes short circuit, high voltage, low voltage, and reverse polarity protection systems for maximum service life.

Questions?

Signal Vehicle Products will attempt to answer and resolve any questions or issues you may have. Please contact our Customer Service Department at the number below with any questions. **When contacting us about a product you have purchased, please have the product's serial number readily available.**

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Precautions

Proper installation of the unit is essential for years of safe, reliable operation. Please read all instruction **before** installing the unit. Failure to follow these instructions can cause serious damage to the unit or vehicle and may void warranties.

- Installing any siren requires a good understanding of automotive electronics, systems, and procedures.
- Please read all of the instructions, before attempting to install or operate any of the sirens.
- Always disconnect power when installing or uninstalling this device.
- Never use a battery charger to bench test this device.
- This product is intended to be installed and operated in interior applications only.

Keep These Instructions - Keep these instructions in the vehicle or other safe place for future reference. Advise the vehicle operator of the location.

Unpacking - Inspect contents for shipping damage. If found, alert carrier immediately.

Contents

Contents should include:

1 - Siren with Microphone
1 - Mounting Bracket w/Screws
1 - Microphone Bracket w/Screws
2 - Wiring Connectors
1 - Pack of Button Labels
1 - Installation and Operating Instructions

Contact your supplier immediately if any components are missing.

Specifications

Input Voltage	10 - 16 VDC (negative ground)
Input Current	8.0 Amps @ 13.6 VDC (single 100W speaker) 16.0 Amps @ 13.6 VDC (dual 100W speakers)
Standby Current	0 mA while Off, <150 mA with backlighting on
Max Peak Current	50 AMPS (supply circuit must be capable of supplying this for brief period)
Audio Frequency	200Hz - 10 kHz ± 3db
Audio Output	40 watts @13.6 VDC
Output Power	105 WATTS RMS MAX. (15.0 VDC – single 100W speaker) 180 WATTS RMS MAX. (15.0 VDC –dual 100W speakers)
Siren Frequency	675Hz - 1633Hz
High Voltage Protection	16 - 18 VDC will cause siren output to cease, resumes at normal voltage
Operating Temperature	-15° F to +140°F
Siren Controls	7-position rotary switch (Radio, Alert, Manual, HF, Wail, Yelp, Phaser) Push-Button Manual and Horn switches Auxiliary input (DIP switch programmable) for positive or negative horn -Remote Manual or Hands Free operation Park Kill input (DIP switch programmable) for positive or negative activation Phaser (and Two-Tone) disable (programmable) Two-Tone activation (swaps modes with Phaser) (programmable)
Diagnostic Indicators	Two LED indicators provide diagnostic feedback for each speaker
Light/Device Controls	7 push-on/push-off buttons 4-position slide switch (Off, ①, ②, and ③)
Light Output Ratings	20A fuse on each of the 10 outputs. (7 push buttons, 3 slide positions)
Siren and Light Connections	Detachable 12-terminal connector Detachable 10-terminal connector 1 individual Ground terminal, 3 +12VDC power terminals
Size	6" Wide, 8" Deep, 3" High
Shipping Weight	6 lbs.

Installation

Signal Vehicle recommends that you bench test the unit immediately after receipt to ensure that it was not damaged in shipping. Then you should program all settings and test again prior to installation.

For quick installation using all of the default options, please refer to the removable centerfold guide.

Optional Settings

The LCS790 has quite a few different options that can be modified to meet your particular needs. Please review BOTH the list below and the one on page 10 to determine if you need to change any of the settings for your application. A more detailed description of each option can be found in the corresponding sections on pages 7-9 and 12-31.

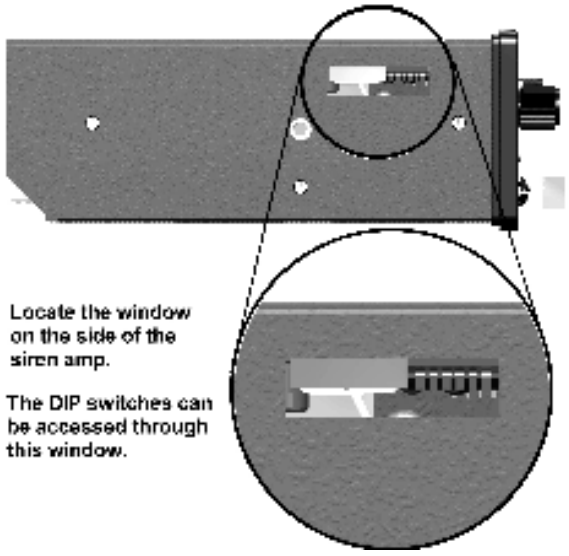
If you need to make any changes to the default settings, please do so prior to installation of the siren.

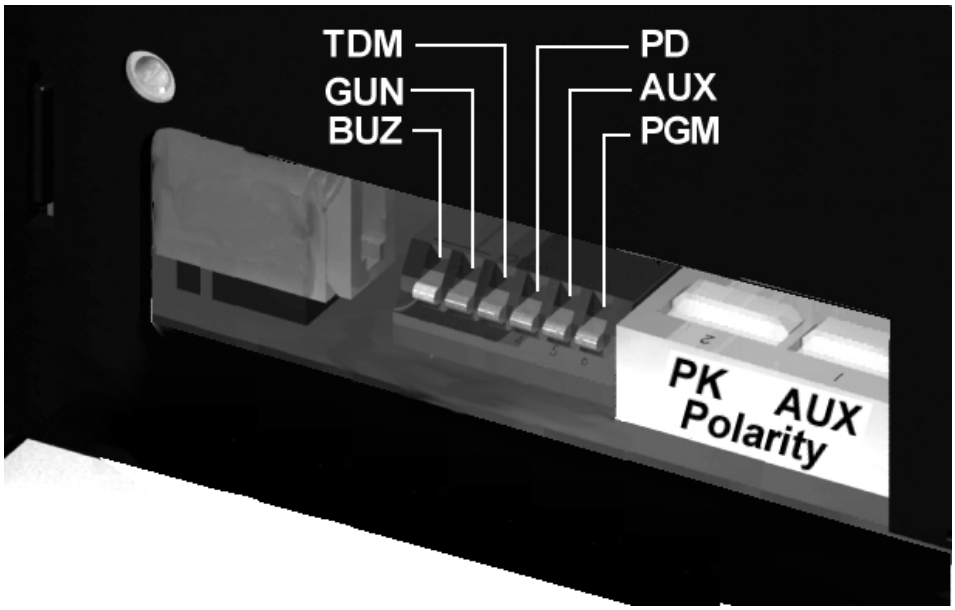
DIP Switch Settings

Option	*Default Setting*	*Optional Setting*
Keypad Beep	Enabled	Silent
Gun Lock Mode	Disabled	8-sec. Open
S5, S6, S7 Traffic Director Mode	Enabled	No Traffic Director
Pursuit Mode for Slide Switch Pos. 3	Enabled	No Auto TD & Siren
Aux Wire Control	Air Horn	Clone Manual Function
Park Kill Wire Polarity	Positive	Ground/Negative
AUX Wire Polarity	Positive	Ground/Negative

A series of DIP switches accessible through the side of the case, allow the installer to select these various options (see the diagram to the right). If any changes are necessary, these options should be set before installation of the unit.

Turn the siren on its side and find the location of the DIP switches





UPSIDE DOWN VIEW

There are two sets of DIP switches located inside the unit. One set has six switches that move up or down. The default position for all of these switches is "down" (closer to the circuit board). The other set contains two DIP switches that slide in or out. The default position for these two switches is "out" (towards you).

Please review the diagram above to determine which switch controls what function. A chart summarizing these functions is located on the following page. Specific detail about each function can be found on pages 7-9.

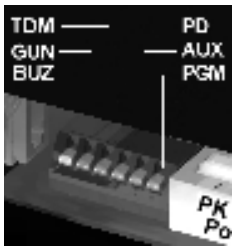
UP/DOWN DIP SWITCHES

SW	LABEL	FUNCTION	DOWN POSITION *(Default)*	UP POSITION
1	BUZ	Beep Setting	Keypad buttons beep when pressed and 10-second beep option also available	Keypad buttons silent when pressed and No 10-sec beep option available.
2	GUN	Gun Lock	Switch 4 is a normal On/ Off switch	Switch 4 used to unlock the Gun Lock for 8 seconds
3	TDM	Traffic Director Mode	TD Mode Enabled Buttons 5, 6, and 7 are used to control a Traffic Director. TD LED display on siren face is activated by buttons 5, 6, and 7.	Buttons 5, 6, and 7 are standard On/Off switches. TD LED display on siren WILL NOT illuminate.
4	PD	Pursuit Disable	Traffic Director auto-activated in WARN mode when slide switch is in position 3. Siren auto-activated in WAIL mode when slide switch is in position 3.	Neither the Traffic Director nor the siren is auto-activated when slide switch is in position 3.
5	AUX	AUX Wire Function	AUX wire used to activate Air Horn.	AUX wire used to activate the Manual function.
6	PGM	Programming Mode	Siren operates normally.	Places siren into advanced programming mode.

IN/OUT DIP SWITCHES

SW	LABEL	FUNCTION	IN POSITION *(Default)*	OUT POSITION
1	PK	Park-Kill Polarity	Park-Kill function is activated by applying ***+12VDC*** to Terminal 1 of the 10-terminal connector.	Park-Kill function is activated by applying ***ground*** to Terminal 1 of the 10-terminal connector.
2	AUX	AUX wire polarity	AUX function (Air Horn or Manual) is activated by applying ***+12VDC*** to Terminal 5 of the 10-terminal connector.	AUX function (Air Horn or Manual) is activated by applying ***ground*** to Terminal 5 of the 10-terminal connector.

UP/DOWN DIP Switch Settings



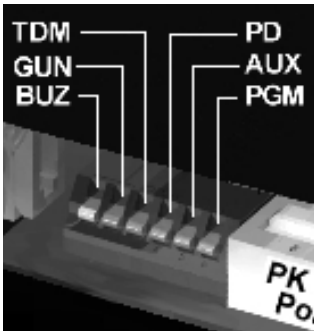
BUZ *Beep Settings*
By default, every time a button is pressed on the keypad, the unit beeps. Flip the DIP switch up to deactivate this feature.

Please note: *The optional 10-second beep function will not work if this switch is in the UP position (see page 15 of the* ***Detailed Programming*** *section for further details).*

GUN *Gun Lock*

This unit is shipped with all of the Push Buttons (**S1-S7**) set to be used as standard On/Off buttons (pressing each button once turns it ON, pressing it a second time turns it OFF). For some applications it may be desirable to have one or more "Gun Lock" buttons. A "Gun Lock" button will stay activated for only 10 seconds when pressed. To activate Gun Lock Mode, flip switch two up. By default, the fourth push button (**S4**) will become a Gun Lock button. *(See page 14 for detailed instructions on how to change the Gun Lock button to a different button, to program additional buttons to act as Gun Lock buttons, or to change the Gun Lock Timer to 20 sec.)*

TDM *Traffic Director Mode*
This unit is shipped with buttons **S5**, **S6**, and **S7** designated for use with an approved traffic director (arrowstick). If any one of these buttons is activated, pressing either of the other buttons will deactivate the active one. In addition, pressing any of these buttons will also activate the traffic director display LEDs on the front of the unit. These LEDs will display the pattern that corresponds to the buttons pressed (i.e. Warn, Left, Right, or Center Out). If you do not have a traffic director, or your traffic director uses a separate controller, and you will be using these buttons as standard On/Off buttons for other functions, flip DIP switch three up. This deactivates the display LEDs. In addition, it will also allow you to turn them all on at once (In TDM mode only one at a time can be active).



PD *Pursuit Disable*

The farthest right slide switch position ③ is normally used for "pursuit mode". By default, when the slide switch is in position ③, the lights connected to it will activate, the siren will activate in Wail mode, and your compatible traffic director (if connected to this unit) will activate in the Warn mode. If you prefer to NOT have the siren and traffic director automatically activated when the slide switch is moved to position three, flip DIP switch 4 up. (See pages 20-22 of the ***Detailed Programming*** section to program the traffic director and siren individually).

AUX *Auxiliary Input Function*

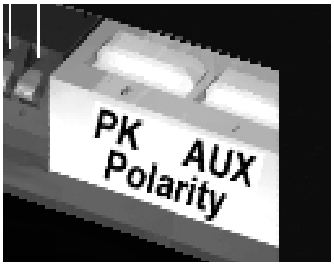
The auxiliary input *(terminal 5 of the 10-terminal connector, see page 38)* allows you to either activate the Air Horn, or to "mimic" the Manual button function, through some other external switch, such as the vehicle horn switch. The wiring diagram on page 39 shows two connection examples. ***NOTE: Permanent disconnection of the vehicle horn is NOT recommended.*** By default, applying +12VDC to the Auxiliary terminal will activate the Air Horn on the siren. If you instead prefer to have the AUX wire activate your Manual function, flip DIP switch 5 up.

PGM *Programming Mode*

Flipping switch 6 up will place the siren into *"Programming Mode"*. This mode will allow you to program additional options. Please see the ***Detailed Programming*** section on page 9.

IN/OUT DIP Switch Settings

There are an additional two DIP switches located to the right of the bank of six. These switches move in and out, rather than up and down (like the previous switches). These two switches are used to control polarity.



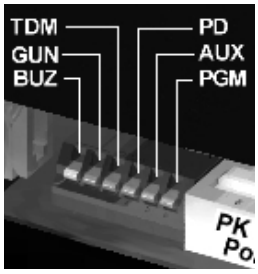
PK *Park-Kill Polarity*
The Park-Kill input (terminal 1 of the 10-terminal connector, see page 37) will turn off any siren tone output when activated (i.e. vehicle shifted into park, door opened, etc.). The tones will remain off until a control on the siren is activated or changed. The wiring diagram on page 39 shows two connection examples.

The park kill input is normally activated by connecting terminal 1 of the 10-terminal connector to positive voltage (+12VDC). To activate by connecting it to ground (negative) instead, push this DIP switch "in" (switch 2 in the diagram above).

AUX *Auxiliary Input Polarity*
The auxiliary input (terminal 5 of the 10-terminal connector and described on the previous page) is normally activated by connecting terminal 5 to positive voltage (+12VDC). To activate it by connecting it to ground (negative) instead, push this DIP switch "in" (switch 1 in the diagram above).

Detailed Programming

DIP switch 6, located on the far right of the left bank of DIP switches (PGM in the diagram to the right) is used for additional programming. Flipping this switch up will place the siren into Programming Mode. This mode will allow you to program several additional options that you may wish set.



With DIP switch 6 (**PGM**) in the UP position, use the rotary selector knob and slide switch to select an option for programming. Then use the appropriate push button (S1-S7) to select the option. See the chart on the next page for a summary of the programming options available. Detailed programming instructions for each option can be found on pages 12-31.

Detailed Programming Summary Table

The options below should be programmed PRIOR to installation of your siren. Refer to pages 12-31 for detailed programming instructions.

Option	Default Setting	Optional Setting	PG
Button Operation (Open or Closed)	Activating a Button (Turning it on) Will Close The Circuit (apply +12VDC)	Activating Button (Turning it on) Opens The Circuit (Off/Not Connected)	12
Button Operation (Latched or Momentary)	All are Standard On/Off (Latched)	Any Can Be Momentary	13
Buttons State at Power Up	All Are Off at Power Up	Any Can Be On	13
Gun Lock Button	Button S4	None, S1, S2, S3, S5, S6, S7	14
Gun Lock Timer	10 Seconds	20 Seconds	14
Auto Beep When Any Function Active	Disabled	Beeps Every 10 sec.	15
Steady or Flashing/Pulsed Outputs	All Steady Output	Any Can Be Pulsed	16
Pulsed Output Rate	Slow	Fast	16
Pulsed Output Phase	All Buttons Phase 1	Any Button(s) Phase 2	16
Manual "Step Up" Function Time Out	Never	After 15 sec.	17
Hands Free Tone Sweep	Disabled	Enabled	17
Siren Disable (Only PA & Air Horn Function)	Siren Enabled	Siren Disabled	18
Audio Lockout	Disabled	All Audio Functions Locked Out Until Button(s) or Slide Switch Programmed Below are Activated	18
Audio Lockout Unless	Slide Positions 1, 2, and 3	Any Output(s)	18
Standby Mode (or Stealth Mode)	No Standby All Buttons Enabled	Unit in Standby Mode Until Slide Switch Activated	19
Slide Switch Progression	Progressive	3 Separate Functions	19
Slide Switch Activates Warn Pattern	Enabled	Disable	20
Slide Positions for Auto-Activation	Slide Position 3	Enable or Disable Any Positions	20
Basic Slide Switch Auto-Activation of Siren Tone	Enabled	Disabled	21
Advanced Siren Auto-Activation: Wail Tone	Slide Switch Position 3	Any Button(s) or Slide Switch	22
Advanced Siren Auto-Activation: Yelp Tone	Disabled	Any Button(s) or Slide Switch	22
Advanced Siren Auto-Activation: Phaser Tone	Disabled	Any Button(s) or Slide Switch	22
Tone Change Allowed While In Audible Pursuit	Allowed	Not Allowed	23
Slide Switch Position 1 Auto-Activates Any Button or Slide Position	Disabled	Any Button(s) or Slide Switch	23-24
Slide Switch Position 2 Auto-Activates Any Button or Slide Position	Disabled	Any Button(s) or Slide Switch	23-24
Slide Switch Position 3 Auto-Activates Any Button or Slide Position	Disabled	Any Button(s) or Slide Switch	23-24
Slide Switch Options Auto-Off	Enabled	Disabled	24
Rotary Switch Tones Auto-Activate Slide Switch Functions	Rotary Knob Functions Normally	Wail, Yelp, Phaser Also Activate L1, L2, L3	25
Park-Kill De-activation Of Functions	Park-Kill only Disables Siren	Park-Kill Disables Both Siren AND any selected outputs	26
High-Low Override of Phaser Tone	Phaser Tone When Rotary Knob in Phaser Position	High-Low Tone When Rotary Knob in Phaser Position	27
Phaser Tone Disable	Phaser Tone When Rotary Knob in Phaser Position	Yelp Tone When Rotary Knob in Phaser Position	27
HRT Active Mode	HRT Will Always Control Siren	HRT Will Only Control Siren If Programmed Button(s) are ON or Slide Switch is in Programmed Position(s)	28
Button(s) or Slide Switch Required For HRT to Activate	LS1, LS2, and LS3	Add Any Button(s) or Remove Any Slide Switch Positions	28
Action Terminal Output	Steady On (for Video)	Pulsed (for Light)	29
Traffic Director Compatibility	TDC850 or DL15-30W	2 Alternate Configurations	29-30

Detailed Programming Legend

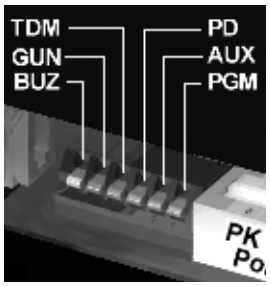
SLIDE SWITCH POSITION	ROTARY KNOB POSITION	PUSH BUTTON	FUNCTION DEFINITION	HORN	MAN	S7	S6	S5	S4	S3	S2	S1	Default
OFF	PHASER	ANY	**Gun Lock Buttons**	▨	▨	S7	S6	S5	S4	S3	S2	S1	ONLY S4
OFF	YELP	ANY	**Button Operation (Open or Closed)**	▨	▨	S7	S6	S5	S4	S3	S2	S1	ALL OPEN
OFF	WAIL	ANY	**Button Operation (Momentary or Latched)**	▨	▨	S7	S6	S5	S4	S3	S2	S1	ALL LATCHED
OFF	HF	ANY	**Button State at Power Up**	▨	▨	S7	S6	S5	S4	S3	S2	S1	ALL OFF
OFF	MAN	ANY	**Steady or Flashing/Pulsed Outputs**	▨	▨	S7	S6	S5	S4	S3	S2	S1	ALL STEADY
OFF	ALERT	S1	**Pulsed Output Rate**									■	SLOW
OFF	ALERT	S2	**Manual "Step Up" Function Times Out**								■		NEVER
OFF	ALERT	S3	**Hands Free Tone Sweep**							■			DISABLED
OFF	ALERT	S4	**Action Terminal Output**						■				STEADY
OFF	ALERT	S5	**Siren Disable (Only PA & Horn Functions)**					■					SIREN ENABLED
OFF	ALERT	S6	**Auto Beep When Any Function Active**				■						DISABLED
OFF	ALERT	S7	**Standby (Stealth) Mode** (Faceplate Activation w/Slide)			■							DISABLED
OFF	ALERT	MAN	**Slide Switch Auto Activates WARN Pattern**		■								ENABLED
OFF	RADIO	S1	**High-Low Override of Phaser Tone**									■	DISABLED
OFF	RADIO	S2	**YELP Override of Phaser Tone**								■		DISABLED
OFF	RADIO	S3	**Rotary Switch Tones Activate Slide Switch**							■			DISABLED
OFF	RADIO	S4	**Basic Slide Switch Activation of Siren**						■				ENABLED
OFF	RADIO	S5	**Slide Switch Progression**					■					PROGRESSIVE
OFF	RADIO	S6	**HRT Active Mode (Configure w/①-RADIO)**				■						ALWAYS ACTIVE
OFF	RADIO	S7	**Audio Lockout (Config w/②-YELP)**			■							DISABLED
OFF	RADIO	MAN	**NON-Progressive Slide (Toggles With S5)**		■								DISABLED
①	PHASER	ANY	**Slide Switch 1 Auto-Activates any Output**	③	②	S7	S6	S5	S4	S3	S2	S1	NONE
①	YELP	ANY	**Park-Kill Deactivation of Functionss**	③	①& ②	S7	S6	S5	S4	S3	S2	S1	NONE
①	WAIL	ANY	**Advanced Siren Auto-Activation: WAIL Tone**	③	①& ②	S7	S6	S5	S4	S3	S2	S1	③
①	HF	ANY	**Advanced Siren Auto-Activation: YELP Tone**	③	①& ②	S7	S6	S5	S4	S3	S2	S1	NONE
①	MAN	ANY	**Advanced Siren Auto-Activation: PHASER Tone**	③	①& ②	S7	S6	S5	S4	S3	S2	S1	NONE
①	ALERT	S1, S2, or S3	**Slide Switch Positions for Auto-Activation of WARN Pattern**	▨	▨	▨	▨	▨	▨	LS3	LS2	LS1	③ ONLY
①	RADIO	ANY	**Button(s) or Slide Switch Required for HRT to Be Activated**	③	①& ②	S7	S6	S5	S4	S3	S2	S1	①, ②, OR ③
②	PHASER	ANY	**Slide Switch 2 Auto-Activates Outputs**	③	①& ②	S7	S6	S5	S4	S3	S2	S1	NONE
②	YELP	ANY	**Audio Lockout Unless… (Only if ENABLED by OFF-RAD-S7)**	③	①& ②	S7	S6	S5	S4	S3	S2	S1	①, ②, OR ③
②	WAIL	ANY PB	**Pulsed Output Phase (if activated by OFF-MAN)**	▨	▨	S7	S6	S5	S4	S3	S2	S1	ALL PHASE 1
②	HF	S1	**Gun Lock Timer (10 seconds or 20 seconds)**									■	10 SECONDS
②	HF	S2	**Slide Switch Options Auto-Off**								■		ENABLED
②	HF	S3	**Tone Change Allowed While in Audible Pursuit**							■			ALLOWED
②	HF	S4	**TD Communications Port ON/OFF**						■				ON
②	HF	S5	**ALT TD Config 1 - L,R,&W (CO= L&R) Toggles with S6 & 7**					■					OFF
②	HF	S6	**Default TD Configuration: DL15-30W-CO,L,&R (Power On=Warn) Toggles with S5 & 7**				■						ON
②	HF	S7	**ALT TD Config 2 - L,R, (Power On=CO) Toggles with S5 & 6**			■							OFF
②	RADIO	HORN/ MAN	**Reset Siren To Factory Defaults**	BOTH									N/A
③	PHASER	ANY	**Slide Switch 3 Auto-Activates Outputs**	②	①& ②	S7	S6	S5	S4	S3	S2	S1	NONE

■ Function Controlled By This Button
Button Controls Different Function
▨ Button Does Nothing

Detailed Programming Instructions

The following section gives a detailed description of how to program each of the options listed/shown on the previous two pages. **If you do not need to change any of these options, you may skip to the *Mounting* section on page 32.**

Once you have programmed each option(s) to the desired setting (s), *you must* flip the PGM DIP switch down to save the changes.



Button Operation (Open or Closed)

All of the Push Buttons (**S1-S7**), by default, operate as a standard switches ("normally open"). When the unit is powered up the buttons are in the OFF mode and the switched circuits are "open". Pressing each button once will turn them ON and "close" the connection (apply +12VDC). Pressing each button again will turn them OFF and open the connection again.

If you would like any of these switches to be "closed" (+12VDC applied) when they are OFF and "open" when they are ON, change this setting.

Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***Yelp***
Place the Slide Switch in this position: ***Off***
And toggle any of these buttons: ***S1-S7***

Button is **Green**: *(Default setting for all buttons)* When any of the buttons are activated (or ON), the circuit is "closed" or "connected" to +12VDC.

Button is **Red**: The circuit is "open" when ON and "closed" connected to +12VDC when OFF.

Each button (***S1-S7***) can be programmed independently of the others.

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.

Button Operation (Latched or Momentary)

All of the buttons, by default, operate as standard pushbutton switches. Pressing each button once will turn it ON and pressing it again will turn it OFF.

If you would like any of these buttons to act as a "momentary" pushbutton switch instead (ON only while held in), change this setting.

Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***Wail***
Place the Slide Switch in this position: ***Off***
And toggle any of these buttons: ***S1-S7***

Button is **Green**: *(Default setting)* Button operates as a standard ON/OFF pushbutton switch.

Button is **Red**: The button will now operate as a momentary switch.

Each button (***S1-S7***) can be programmed independently of the others.

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.

Push Button State At Power Up

Each button, by default, operates as a standard switch. When the LCS790 unit is powered up, they are all in the OFF mode. Pressing each button once will turn it ON and pressing it again will turn it OFF.

If you would like any of these switches to automatically be in the ON position (activated) when the unit is powered up, change this setting.

Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***HF***
Place the Slide Switch in this position: ***Off***
And toggle any of these buttons: ***S1-S7***

Button is **Green**: *(Default setting)* When the unit is powered up, the switch is de-activated (or OFF).

Button is **Red**: When the unit is powered up, the switch is ON.

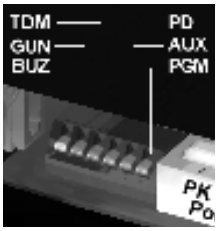
Please note: *The switches still function normally as an On/Off switch in either mode. This option only changes whether the switch is automatically On or automatically Off when the unit is powered up.*

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.

Please Note: You must have the Gun Lock DIP switch (GUN) on to use these two features (see page 7).

Optional Gun Lock Button

All of the buttons, by default, operate as standard push button switches. Pressing each button once will turn it ON and pressing it again will turn it OFF.



If you would like any of these buttons to act as a timed "Gun Lock" pushbutton switch instead (timed ON to disengage your gun lock), change this setting.

Place the PGM DIP switch in this position:	***Up***
Place the Rotary Knob in this position:	***Phaser***
Place the Slide Switch in this position:	***Off***
And toggle any of these buttons:	***S1-S7***

Button is **Green**: *(Default setting for **S1-S3, S5-S7**)* Button operates as a standard ON/OFF pushbutton switch.

Button is **Red**: *(Default setting for **S4**)*The button will now operate as a timed "Gun Lock" switch.

Each button (***S1-S7***) can be programmed independently of the others.

⚠ **Once you have programmed your option(s) to the desired setting(s), ***you must*** flip the PGM DIP switch down to save the changes.**

▽**Advanced Gun Lock Programming**▷

Gun Lock Timer (10 seconds or 20 seconds)

If you have set one or more of your push buttons to operate as a Gun Lock button above, it will default to a 10 second timed switch.

If you would like the timed switch to activate for 20 seconds instead of 10 seconds, change this setting.

Place the PGM DIP switch in this position:	***Up***
Place the Rotary Knob in this position:	***HF***
Place the Slide Switch in this position:	①
And toggle this button:	***S1***

S1 is **Green**: *(Default setting)* All Gun Lock buttons are activated for 10 seconds.

S1 is **Red**: All Gun Lock buttons are activated for 20 seconds.

⚠ **Once you have programmed your option(s) to the desired setting(s), ***you must*** flip the PGM DIP switch down to save the changes.**

Please Note: You must have the Beep DIP switch (BUZ) on to use this feature (see page 7).

Auto Beep When Any Function Active

This unit can be programmed to "Beep" every 10 seconds whenever any functions are activated. This feature is designed to alert the user that devices which may not be noticed by the user, are still active.

If you would like the unit to beep every 10 seconds when any function is active, change this setting.

Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***Alert***
Place the Slide Switch in this position: ***Off***
And toggle this button: ***S6***

If ***S6*** is **Green**: *(Default setting)* The unit will NOT auto-beep every 10 seconds.

If ***S6*** is **Red**: The auto-beep feature is enabled and the unit will bee every 10 seconds whenever any functions are active.

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.

Steady or Flashing/Pulsed Outputs

The outputs switched by each push button normally apply steady +12 VDC.

If you would like any of these outputs to be flashing or pulsed (i.e. if you were hooking it up to a light that didn't have its own flasher), change this setting.

Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***MAN***
Place the Slide Switch in this position: ***Off***
And toggle any of these buttons: ***S1-S7***

Button is **Green**: *(Default setting)* The output will deliver steady +12 VDC.
Button is **Red**: The output will pulse +12 VDC.

Each button (***S1-S7***) can be programmed independently of the others. Under normal operation, the buttons controlling any outputs programmed to flash, will flash green.

Once you have programmed your option(s) to the desired setting (s), *you must* flip the PGM DIP switch down to save the changes.

Advanced Pulsed Output Programming

Pulsed Output Rate

If you have set any of the outputs to pulse (as described above), they will default to a slow flashing pattern. If you would like your pulsed outputs to use a fast flashing pattern, change this setting.

Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***ALERT***
Place the Slide Switch in this position: ***Off***
And toggle this button: ***S1***

Button is **Green**: *(Default setting)* Any pulsed outputs will flash slow.
Button is **Red**: Any pulsed outputs will flash fast.

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.

Pulsed Output Phase *(for use with two or more pulsed outputs)*

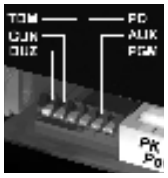
If you have set any of the outputs to pulse (as described above), there are two "phases" each can flash in (Phase 1 alternates with Phase 2). By default, all of the outputs are set for Phase 1 (they will all flash "On" at the same time). If you wish any of the outputs to flash in Phase 2 (opposite Phase 1), change this setting.

Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***WAIL***
Place the Slide Switch in this position: ②
And toggle any of these buttons: ***S1-S7***

Button is **Green**: *(Default setting)* Output, if pulsed, will flash during Phase 1.
Button is **Red**: Output, if pulsed, will flash during Phase 2.

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.

Manual "Step-Up" Function Time Out



By default, when a siren tone is activated, pressing the Manual button will advance it (or "step it up") to the next siren tone, where it will remain until you deactivate or change it.

If you would like the Manual button only to *temporarily* step up the tone for 15 seconds and then revert back to the original tone, change this setting.

Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***Alert***
Place the Slide Switch in this position: ***Off***
And toggle this button: ***S2***

If ***S2*** is **Green**: *(Default setting)* Manual button functions normally (changes tone to next quicker).

If ***S2*** is **Red**: Manual function will time out after 15 seconds and revert to the original tone.

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.

Hands Free Tone Sweep

When the rotary selector knob is first placed in HF mode, no sound will be produced. By default, activating the Auxiliary input *(see page 37 of the **Electrical Connections** section)* will produce the WAIL tone. Activating the Auxiliary input again will advance it to the next siren tone, where it will remain until you deactivate or change it. Each time you activate the auxiliary function it will cycle through the tones:
(WAIL ⇨ YELP ⇨ PHASER/TWO-TONE ⇨ OFF).

If you would like the siren to continually "sweep" through all of these tones at 10 cpm instead of just advancing to the next tone only when the Auxiliary input is activated, change this setting.

Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***Alert***
Place the Slide Switch in this position: ***Off***
And toggle this button: ***S3***

If ***S3*** is **Green**: *(Default setting)* Auxiliary input functions normally in HF mode (changes tone to next quicker).

If ***S3*** is **Red**: Activating the Auxiliary input in HF mode will cause the siren to "sweep" through all tones. Activating the Auxiliary input again will deactivate the siren.

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.

Siren Disable (PA and Horn Functions only)

If you desire to COMPLETELY disable the siren feature from this unit, allowing only the PA, Horn, and Radio audio functions (applications such as security, volunteer, training etc.), change this setting.

Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***ALERT***
Place the Slide Switch in this position: ***Off***
And toggle this button: ***S5***

Button is **Green**: *(Default setting)* Siren functions normally
Button is **Red**: Siren tones WILL NOT function in any mode.

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.

Audio Lockout

Normally, you can activate the siren at any time, by placing the rotary switch in one of the siren positions (Phaser, Yelp, Wail). If you would like to prevent the siren from activating UNTIL a certain push button is activated, or the slide switch is moved, change this setting.

Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***RADIO***
Place the Slide Switch in this position: ***Off***
And toggle this button: ***S7***

S7 is **Green**: *(Default setting)* Siren function always available.
S7 is **Red**: Siren will only operate if any of the buttons or slide switch programmed below are activated. (By default, any Slide position other than off will allow for operation of the siren.)

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.

▷ Advanced Audio Lockout Programming ▷

Audio Lockout Unless
(Programming Buttons/Slide Positions That Disable Audio Lockout)

If you wish to change the "Lockout Disable Buttons", follow the steps below to select or deselect the desired button(s) and/or slide position(s).

Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***YELP***
Place the Slide Switch in this position: ***②***
And toggle any of these buttons: ***S1-S7, HORN, or MAN***

(Use the HORN button to program for slide position 3 and use the MAN button to program for slide positions 1 & 2)

Button is **Red**: *(Default setting for **HORN** & **MAN**)* That button or slide position will disable the Audio Lockout feature (allow the siren to operate).
Button is **Green**: *(Default setting for **S1-S7**)* Button/slide position has no effect on Audio Lockout.

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.

Standby Mode (Stealth Mode)

By default, all of the functions on this unit can be activated at any time.

If you would like the unit to remain in "Standby" mode ***(all features and faceplate lighting disabled)*** until the slide switch is activated, change this setting. This feature is often desirable for undercover operations such as a stakeout.

Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***ALERT***
Place the Slide Switch in this position: ***Off***
And toggle this button: ***S7***

If ***S7*** is **Red**: *(Default setting)* All features available at any time.

If ***S7*** is **Green**: Standby enabled—No features available until the slide switch is moved.

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.

Slide Switch Progression
(Progressive Slide Switch or Non-Progressive Slide Switch)

The default setting for the slide switch is for *"progressive"* switching. This means that each position will add another function while keeping the previous one(s) on. Position ① activates the first function. Position ② activates the functions connected to both ① and ②. Position ③ will activate all of the functions connected to ①, ②, and ③ (as well as activating any other Pursuit Mode functions you may program). You can change this slide switch to a non-progressive switch so that each position activates only the functions connected to each output.

If you would like to have a non-progressive slide switch, change this setting.

Switch Placement	*Progressive*	*Non-Progressive*
Place the PGM DIP switch in this position:	***Up***	***Up***
Place the Rotary Knob in this position:	***Radio***	***Radio***
Place the Slide Switch in this position:	***Off***	***Off***
And toggle these buttons:	***S5***	***HORN***

If ***S5*** is **Red**: *(Default setting)* Slide switch functions "progressively".

If ***HORN*** is **Red**: Slide switch is "non-progressive" and activates each output independently.

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.

When the ***S5*** button is lit red, the slide switch is programmed to act *"progressively"*. To make it *"non-progressive"*, while in this Programming Mode, press the ***HORN*** button. The ***S5*** button will then glow green, the ***HORN*** button will glow red, and the slide switch will be non-progressive.

To change it back to a progressive switch, press the ***S5*** button. It will change to red, indicating that the slide switch will act progressively.

Slide Switch Activates Warn Pattern (on Traffic Director)

Under normal operation, when you place the siren in "Pursuit" mode by moving the slide switch to Position ③, the Traffic Director will automatically activate and display the Warn pattern.

If you would like to disable this feature, change this setting.

Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***ALERT***
Place the Slide Switch in this position: ***OFF***
And toggle this button: ***MAN***

If ***MAN*** is **Red**: *(Default setting)* The Traffic Director will automatically activate into the Warn pattern whenever the unit is in Pursuit mode (slide switch moved to Position ③).

If ***MAN*** is **Green**: The Traffic Director will NOT activate automatically.

Please Note: *In order for this feature to work, you MUST have the TDM option set for Traffic Director Mode (see page 7) and you MUST NOT have the PD jumper set for Pursuit Disable (see page 8).*

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.

▷ **Advanced Slide Switch Programming** ◁

Slide Switch Positions for Auto-Activation of Traffic Director

If you have the "Auto-Activation" feature enabled, as described above, you can select or deselect which slide positions will auto-activate the Traffic Director. The default factory setting auto-activates the Traffic Director when the slide switch is moved to Position ③.

If you would like to add or remove slide positions that auto-activate the Traffic Director, change this setting.

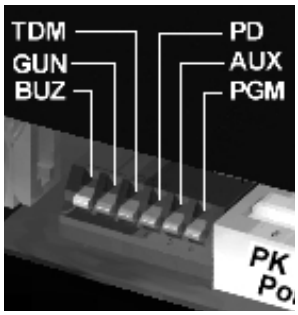
Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***ALERT***
Place the Slide Switch in this position: ①
And toggle these buttons: ***S1, S2, S3***

(Use the S1 button to program for slide position 1, use the S2 button to program for slide position 2, and use the S3 button to program for slide position 3)

Button is **Red**: *(Default setting for S3/SS③)* The Traffic Director will automatically activate into the Warn pattern whenever the Slide Switch is in this position.

Button is **Green**: *(Default setting for S1/SS①* & *S2/SS②)* This Slide Switch position has no effect on the Traffic Director.

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.



Basic Slide Switch Auto-Activation of Siren

Under normal operation, when you place the siren in "Pursuit" mode by moving the slide switch to Position ③, the Siren will automatically activate with the WAIL tone.

If you would like to disable this feature, change this setting.

Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***Radio***
Place the Slide Switch in this position: ***Off***
And toggle this button: ***S4***

If ***S4*** is **Red**: *(Default setting)* The siren will automatically activate whenever the unit is in Pursuit mode (slide switch moved to Position ③).

If ***S4*** is **Green**: The siren will NOT activate automatically with the slide switch.

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.

If you would like more advanced programming of this feature, this siren can also be programmed to auto-activate different tones in different slide switch positions, as well as auto-activate with any of the push buttons. Activation of the WAIL tone in Position ③ is the factory default. Please see the next page for advanced programming for siren auto-activation.

Advanced Siren Auto-Activation ***(Slide Switch and/or Push Buttons)***

As indicated on the previous page, by default, when you place the unit in "Pursuit" mode by moving the slide switch to Position ③, the siren will automatically activate with the WAIL tone.

This unit also allows you to select different siren tones to be auto-activated for different slide switch positions and/or different tones that can be auto-activated with different push button switches.

If you would like to use this feature, change these setting.

Place the PGM DIP switch in this position: ***Up***
Place the Slide Switch in this position: ③

Place the Rotary Knob in the corresponding position, depending upon which tone you wish to program:

	Rotary Knob Position
To program auto activation of the *WAIL* tone:	***WAIL***
To program auto activation of the *YELP* tone:	***HF***
To program auto activation of the *PHASER* tone:	***MAN***

And toggle any of these buttons: ***S1-S7, HORN, MAN***

(Buttons S1-S7 are used to program themselves. Use the MAN button to program for slide positions 1 & 2 and use the HORN button to program for slide position 3)

Button is **Red**: *(Default setting for HORN Button—Slide 3 under the WAIL tone)* The siren will automatically activate whenever the slide switch is in this position, or this button is pressed).

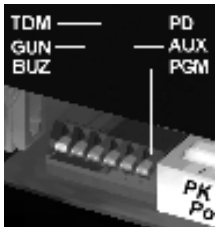
Button is **Green**: *(Default setting for ALL but HORN Button)*The siren will NOT activate automatically with this slide position or button.

Please Note: *If you have more than one tone programmed for a particular position or button, only the fastest tone will be produced (i.e. PHASER overrides YELP, which overrides WAIL).*

Once you have programmed *EACH TONE* to the desired slide positions or buttons, *you must* flip the PGM DIP switch down to save the changes. Then you can proceed to the next tone.

Tone Change Allowed While In Audible Pursuit

The default programming for this siren allows you to move the rotary knob and change the tone at any time. If you would like to prevent the tone from being changed while you are in pursuit mode, change this setting.



Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***HF***
Place the Slide Switch in this position: ②
And toggle this button: ***S3***

S3 is **Green**: *(Default setting)* Tone change is allowed during audible pursuit..

S3 is **Red**: Tone change IS NOT allowed during audible pursuit.

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.

Slide Switch Auto-Activation of Any Button or Slide Position

You may wish to have one or more of the functions that are connected to your push button switches and/or slide switch outputs auto-activate with your slide switch. This unit gives you the ability to have any function auto-activate in any slide switch position.

If you would like to auto-activate any of the functions when the slide switch is flipped, follow the steps below.

Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***PHASER***
Place the Slide Switch in this position: ①
And toggle these buttons: ***S1-S7, HORN, MAN***

S1-S7 are **Green**: *(Default setting)* Functions tied to each Green button ***(S1-S7)*** will NOT automatically activate whenever the slide switch is moved to Position ①.

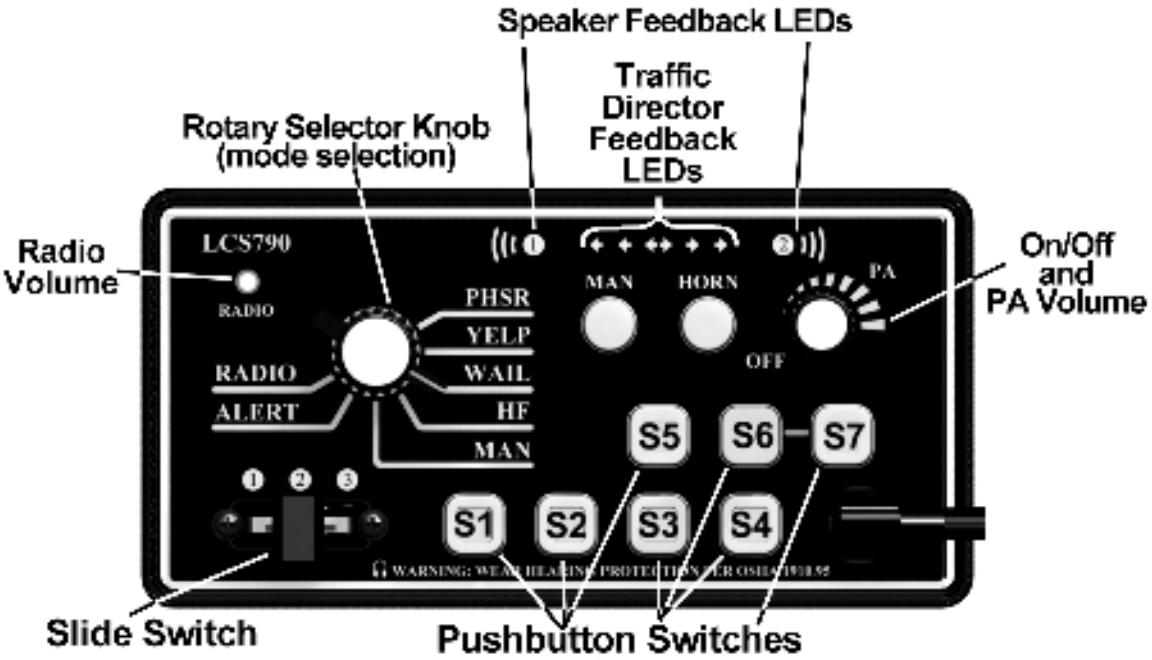
HORN is **Green**: *(Default setting)* Functions tied to ***SS***③ output will NOT automatically activate whenever the slide switch is moved to Position ①.

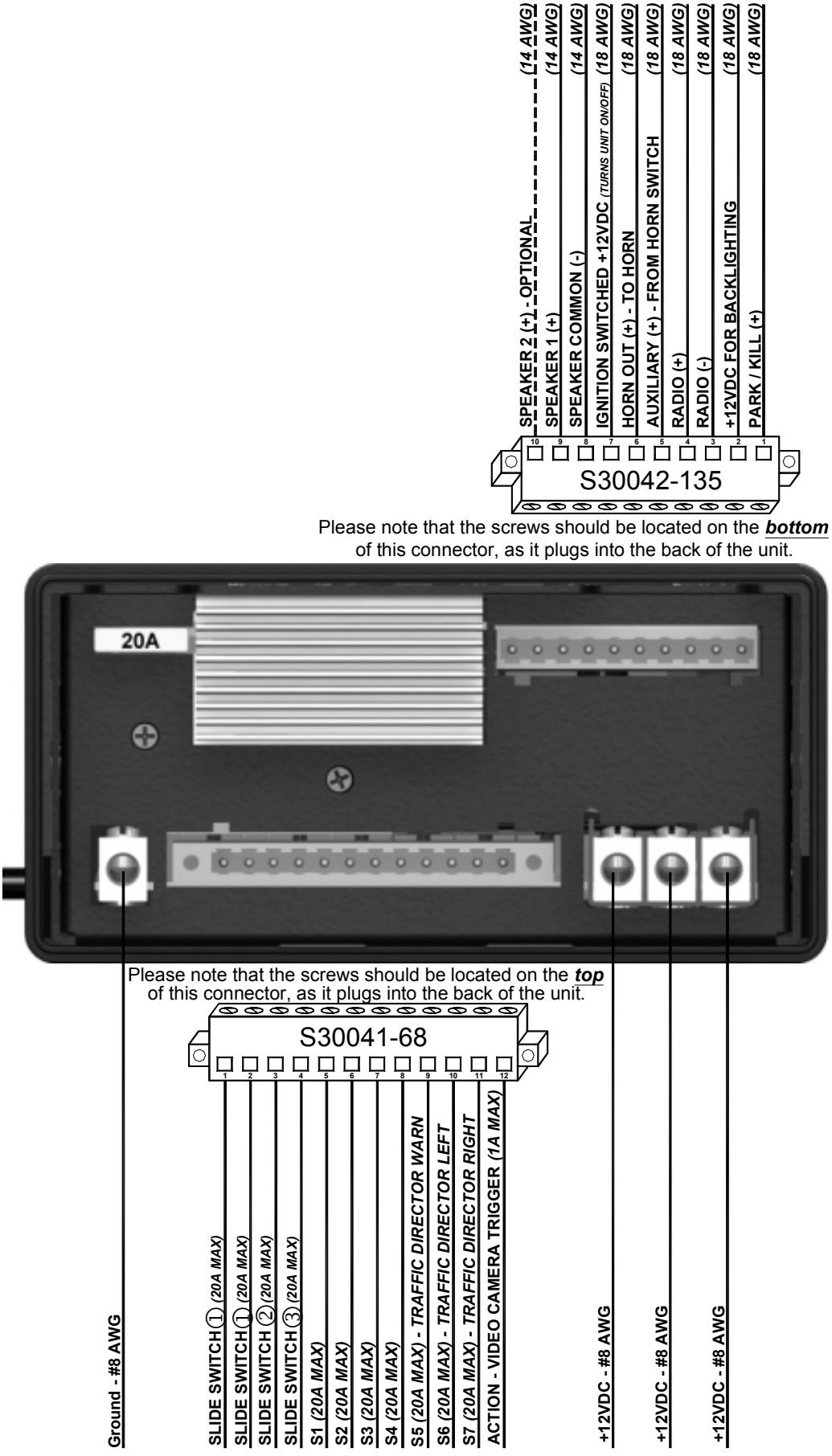
MAN is **Green**: *(Default setting)* Functions tied to ***SS***② output will NOT automatically activate whenever the slide switch is moved to Position ①.

QUICK INSTALLATION GUIDE
REMOVABLE CENTERFOLD

QUICK INSTALLATION CHECKLIST

- 8 AWG Wire to Ground Terminal
- +12VDC to three Light Power Terminals (Use 8 AWG)
- Lights connected to S1-S7 outputs
- +12VDC for Backlighting to Terminal 2 of 10-way conn.
- Ignition switched +12VDC to Terminal 7 of 10-way conn.
- Speaker (+) and (-) connected
- Correct AUX and Park-Kill polarity (+ is default)
- PA/VOL turned ON




SPEAKER 2 (+) - OPTIONAL (14 AWG)
SPEAKER 1 (+) (14 AWG)
SPEAKER COMMON (-) (14 AWG)
IGNITION SWITCHED +12VDC (TURNS UNIT ON/OFF) (18 AWG)
HORN OUT (+) - TO HORN (18 AWG)
AUXILIARY (+) - FROM HORN SWITCH (18 AWG)
RADIO (+) (18 AWG)
RADIO (-) (18 AWG)
+12VDC FOR BACKLIGHTING (18 AWG)
PARK / KILL (+) (18 AWG)
10 9 8 7 6 5 4 3 2 1
S30042-135
Please note that the screws should be located on the bottom of this connector, as it plugs into the back of the unit.
20A
Please note that the screws should be located on the top of this connector, as it plugs into the back of the unit.
S30041-68
1 2 3 4 5 6 7 8 9 10 11 12
Ground - #8 AWG
SLIDE SWITCH ① (20A MAX)
SLIDE SWITCH ① (20A MAX)
SLIDE SWITCH ② (20A MAX)
SLIDE SWITCH ③ (20A MAX)
S1 (20A MAX)
S2 (20A MAX)
S3 (20A MAX)
S4 (20A MAX)
S5 (20A MAX) - TRAFFIC DIRECTOR WARN
S6 (20A MAX) - TRAFFIC DIRECTOR LEFT
S7 (20A MAX) - TRAFFIC DIRECTOR RIGHT
ACTION - VIDEO CAMERA TRIGGER (1A MAX)
+12VDC - #8 AWG
+12VDC - #8 AWG
+12VDC - #8 AWG
WARNING LIGHT OUTPUTS
(12AWG-18AWG Depending Upon Load)
POWER FOR LIGHTS

Slide Switch Auto Activation of Push Button Functions *(CONT'D)*

S1-S7 are **Red**: Functions tied to each Red button ***(S1-S7)*** WILL automatically activate whenever the slide switch is moved to Position ①.

HORN is **Red**: Function tied to ***SS2*** output WILL automatically activate whenever the slide switch is moved to Position ①.

MAN is **Red**: Function tied to ***SS3*** output WILL automatically activate whenever the slide switch is moved to Position ①.

Repeat the steps above for slide position ②.

With the PGM DIP switch UP and the Rotary Knob still in the ***Phaser*** position, move the Slide Switch to position ②. Toggle buttons: ***S1-S7, HORN, MAN*** as described above, to program any outputs to auto-activate with Slide Switch Position ②. (***Please note the the HORN button will program SS1 output to activate in ② and the MAN button will program the SS3 output to activate in ②.***)

Repeat the steps above for slide position ③.

Flip the PGM DIP switch UP to program Slide Position ③

With the PGM DIP switch UP and the Rotary Knob still in the ***Phaser*** position, move the Slide Switch to position ③. Toggle buttons: ***S1-S7, HORN, MAN*** as described above, to program any outputs to auto-activate with slide switch position ③. (***Please note the the HORN button will program SS1 output to activate in ③ and the MAN button will program the SS2 output to activate in ③.***)

⚠ **Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.**

▽Advanced Slide Switch Programming▷

Slide Switch Options Auto-Off

By default, any of the additional button functions that you have programmed above to auto-activate with the various slide switch positions will DE-ACTIVATE once you move the Slide Switch out of the corresponding position.

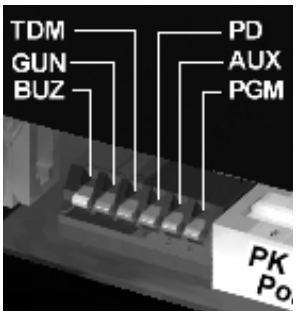
If you want them to stay ***on***, once the slide switch is moved out of the corresponding position, change this setting.

Place the PGM DIP switch in this position:	***Up***
Place the Rotary Knob in this position:	***HF***
Place the Slide Switch in this position:	②
And toggle this button:	***S2***

If ***S2*** is **Green**: *(Default setting)* Push button functions that are auto-activated with the slide switch will turn off when the slide switch is moved out of the corresponding position.

If ***S2*** is **Red**: Push button functions that are auto-activated with the slide switch will stay on until the button each is associated with is pressed.

⚠ **Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.**



Rotary Switch Tones Auto-Activate Slide Switch Functions

This unit allows you to program the slide switch functions to automatically activate when the rotary switch is placed in the WAIL, YELP, or PHSR positions. If this option is enabled, when the siren is placed in the WAIL mode, the functions tied to Slide Switch Position ① will automatically turn on. If you advance the Rotary Knob to the next quicker tone, YELP, the functions tied to Slide Switch Position ② will also activate. Moving the rotary knob to the PHSR tone will then activate the functions tied to Slide Switch Position ③.

,To enable this feature, change this setting.

Place the PGM DIP switch in this position:	***Up***
Place the Rotary Knob in this position:	***RADIO***
Place the Slide Switch in this position:	***OFF***
And toggle this button:	***S3***

S3 is **Green**: *(Default setting)* Slide Switch functions **ARE NOT** auto-activated with Rotary Switch tones.

S3 is **Red**: Slide Switch functions **ARE** auto-activated with Rotary Switch tones, as described above.

⚠ **Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.**

Park-Kill De-activation of Functions

The Park-Kill option will automatically shut off the siren when activated by an external switch (i.e. the vehicle is put in park, a door is opened, etc.).

By default, the Park-Kill option for this unit (described on page 37) only disables the siren. If you would also like it to automatically disable any of the outputs tied to your Slide Switch or Push Buttons, change these settings.

Place the PGM DIP switch in this position:	***Up***
Place the Rotary Knob in this position:	***YELP***
Place the Slide Switch in this position:	①
And toggle these buttons:	***S1-S7, HORN, MAN***

S1-S7 are **Green**: *(Default setting)* Functions tied to each Green button ***(S1-S7)*** will NOT automatically deactivate whenever the Park-Kill function is activated.

HORN is **Green**: *(Default setting)* Functions tied to ***SS***③ output will NOT automatically deactivate whenever the Park-Kill function is activated.

MAN is **Green**: *(Default setting)* Functions tied to ***SS***① and ***SS***② outputs will NOT automatically deactivate whenever the Park-Kill function is activated.

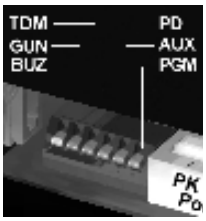
S1-S7 are **Red**: Functions tied to each Red button ***(S1-S7)*** WILL automatically deactivate whenever the Park-Kill function is activated.

HORN is **Red**: Function tied to ***SS***③ output WILL automatically deactivate whenever the Park-Kill function is activated.

MAN is **Red**: Function tied to ***SS***① and ***SS***② outputs WILL automatically deactivate whenever the Park-Kill function is activated.

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.

High-Low (Two-Tone) Override of Phaser Tone



By default, the Phaser tone is enabled on this siren. This tone can be replaced with a High/Low siren (also known as Two Tone or the European sound). This feature would be used in areas where the High/Low tone was desired instead of the Phaser sound. Some municipalities may also have regulations regarding the use of the Phaser tone and you may wish to override it with the High/Low tone.

If you would like to use the High/Low tone instead of the Phaser tone, change this setting.

Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***Radio***
Place the Slide Switch in this position: ***Off***
And toggle this button: ***S1***

If ***S1*** is **Green**: *(Default setting)* Phaser tone functions normally.

If ***S1*** is **Red**: Phaser tone is replaced by the High/Low tone (also known as Two-Tone or the European sound).

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.

Phaser Tone Disable

As mentioned above, by default, the Phaser tone is enabled on this siren. Some municipalities may have regulations regarding the use of the Phaser tone and, in addition, you may not wish to have the High/Low tone either. This option will allow you to replace the Phaser tone with the Yelp tone.

If you would like to use the Yelp tone instead of the Phaser tone in **PHSR** mode, change this setting.

Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***Radio***
Place the Slide Switch in this position: ***Off***
And toggle this button: ***S2***

If ***S2*** is **Green**: *(Default setting)* Phaser tone functions normally.

If ***S2*** is **Red**: Phaser tone is replaced by the Yelp tone.

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.

HRT Active Mode

By default, if you connect the Horn Ring Transfer (HRT) option (see Horn Out and Auxiliary wires in wiring diagram on page 39), you can control the siren any time it is on (see page 38).

If you would like this feature to be disabled until the slide switch or certain buttons are activated, change this setting.

Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***Radio***
Place the Slide Switch in this position: ***Off***
And toggle this button: ***S6***

If ***S6*** is **Red**: *(Default setting)* The HRT function will operate any time the siren is on.

If ***S6*** is **Green**: The HRT feature will only operate when the buttons programmed below are activated. (By default, if S6 is green, the HRT function will be operational any time the Slide Switch is moved to ①, ②, or ③).

If S6 is red, flip the PGM DIP switch down to save the changes.

If S6 is green, you may need to proceed below to program the functions necessary for the HRT to function. If the default setting of any Slide Switch position activating HRT is acceptable, you can flip the PGM DIP switch down to save the changes and skip the Advance Slide Switch Programming section below.

——Advanced Slide Switch Programming——

If you need to select which buttons or slide switch positions will enable functioning of the HRT mode, proceed below.

With the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***RADIO***
Place the Slide Switch in this position: ①
And toggle these buttons: ***S1-S7, HORN, MAN***

S1-S7 are **Green**: *(Default setting)* If any of the functions tied to each Green button ***(S1-S7)*** are activated, the HRT function is available.

HORN is **Green**: *(Default setting)* If ***SS***③ is activated, the HRT function is available.

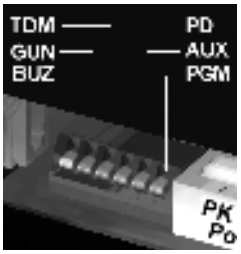
MAN is **Green**: *(Default setting)* If ***SS***① or ***SS***② is activated, the HRT function is available.

S1-S7 are **Red**: These buttons ***(S1-S7)*** will have no effect on whether or not the HRT function is available.

HORN is **Red**: ***Slide Switch Position*** ③ will have no effect on whether or not the HRT function is available.

MAN is **Red**: Function tied to ***Slide Switch Position*** ① and ***Slide Switch Position*** ② will have no effect on whether or not the HRT function is available.

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.



Action Terminal Output

Under normal operation, when you activate any function on this unit, Terminal 12 of the 12-terminal connector wire will automatically be powered up (+12VDC). This terminal is designed for devices, such as a video system, that you may wish to have automatically turn on when any of your devices are activated.

If you would instead like this terminal to pulse (i.e. it will be hooked up to a small indicator light), change this setting.

Place the PGM DIP switch in this position: ***Up***
Place the Rotary Knob in this position: ***Alert***
Place the Slide Switch in this position: ***Off***
And toggle this button: ***S4***

If ***S4*** is **Green**: *(Default setting)* The Action output will produce a steady +12VDC output when any function is activated on this unit.

If ***S4*** is **Red**: The Action output will pulse +12VDC output when any function is activated on this unit.

Once you have programmed your option(s) to the desired setting(s), *<u>you must</u>* flip the PGM DIP switch down to save the changes.

Traffic Director Compatibility Settings

If you will be connecting a Traffic Director to this unit, be sure that you have set the TDM jumper for Traffic Director Mode (as explained on page 7).

The LCS790 can be programmed for compatibility with a number of different traffic directors. The default settings of this unit allow for operation of a traffic director controlled by our TDC850 (i.e. TD77, TD92, TD93) through the communications port, or our DL15-30W traffic director using **S5**, **S6**, & **S7** outputs.

Options available include disabling the communications port, or two additional traffic director compatibility modes. If you would like to change any of these options, proceed with the instructions on the next page.

Traffic Director Compatibility Settings (CONT'D)

By default, the COM port is active and the unit is set for DL15-30W compatibility. Under this setting you can either connect our standard TDC850 traffic director control box using the COM port, or connect our DL15-30W Traffic Director (or compatible) to the **S5**, **S6**, and **S7** outputs.

There may be rare occasions where you may wish to disable the COM port (telephone style jack) on the back of the LCS790. Or there may be some applications that require the use of a Traffic Director that is wired differently than the DL15-30W.

Please review the optional wiring schemes below that the unit can be programmed for:

DL15-30W Configuration: Stick operated with 3 wires (Warn/Power, Left, and Right)
Warn (S5), Left (S6), Right (S7), and Center-Out (Press S6+S7)
(C/O activated by power to Warn+Left+Right wires from stick)

Alt. TD Configuration #1: Stick operated with 3 wires (Warn, Left, and Right)
Warn (S5), Left (S6), Right (S7), and Center-Out (Press S6+S7)
(C/O activated by power to only Left+ Right wires from stick)

Alt. TD Configuration #2: Stick operated with 3 wires (Center Out, Left, and Right)
Center Out (S5), Left (S6), and Right (S7) - No Warn Pattern

To deactivate the COM port or change the outputs to control a different Traffic Director, proceed below:

Place the PGM DIP switch in this position:	***Up***
Place the Rotary Knob in this position:	***HF***
Place the Slide Switch in this position:	②
And toggle these buttons:	***S4, S5, S6, and S7***

Only one of these will remain **Red** at any given time:

If ***S4*** is **Red**: *(Default setting)* COM port is active and ***S5, S6, and S7*** outputs are in DL15-30W compatibility mode.

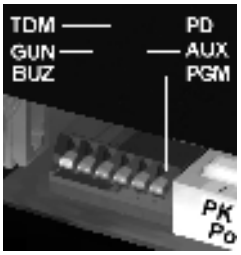
If ***S5*** is **Red**: Alternate TD Configuration #1 / COM Port deactivated.

If ***S6*** is **Red**: Standard DL15-30W compatibility / COM Port deactivated.

If ***S7*** is **Red**: Alternate TD Configuration #2 / COM Port deactivated.

*Please note that any time **S4** is **Green** the COM port is de-activated.*

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.



Reset To Factory Defaults

If at anytime during the programming, you are unsure of what settings you have changed, you can reset the unit back to the factory defaults.

To reset the siren to its factory default settings, perform the following.

Place the PGM DIP switch in this position:	***Up***
Place the Rotary Knob in this position:	***Radio***
Place the Slide Switch in this position:	②
And press both of these buttons together:	***Manual and Horn***

You must hold the Manual and Horn buttons for approximately 15 seconds to reset the siren. The five amber traffic director LEDs will sequentially light up from left to right while you are holding down the Manual and Horn buttons. The entire unit will flash three times once the reset programming has completed. After the unit flashes three times, you can release the Manual and Horn buttons.

Once you have programmed your option(s) to the desired setting(s), *you must* flip the PGM DIP switch down to save the changes.

After flipping the PGM switch down, cycle the power on the unit by turning the PA knob fully counter-clockwise until it “clicks” off, then rotating it clockwise to turn it back on.

Mounting

SAFETY PRECAUTIONS

For the safety of the installer, vehicle operator, passengers, and the community please observe the following safety precautions. **Failure to follow all safety precautions and instructions may result in property damage, injury or death.**

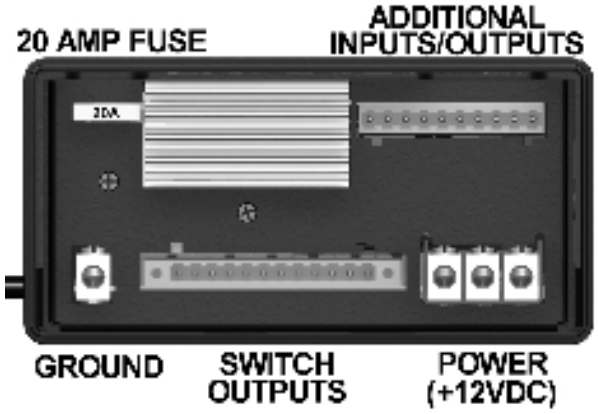
!!! WARNING !!!

- Devices should be mounted only in locations listed in SAE standard J1849.
- Controls should be placed within convenient reach of the driver.
- Assure clearances before drilling in vehicle.
- To prevent internal damage, the mounting bolts must not enter case more than 1/4".
- Sound levels produced by attached speakers can cause permanent hearing loss.
- Never operate this unit without adequate hearing protection for you and others in the area. (OSHA 1910.95)

- The LCS790 siren may be mounted above the dash, below the dash, or in a rack with the mounting u-bracket provided.
- Choose a mounting location convenient to the operator and away from any air bag deployment areas.
- Inspect behind mounting area for clearance.
- Assure adequate ventilation to prevent overheating.
- Consider wire routing and access to connections, as well as micro-phone bracket placement.
- Install mounting bracket to vehicle using 1/4" hardware (not supplied). Drill two 1/8" size holes, and install microphone clip using the two screws provided with the clip.
- If mounting in a rack or console, make sure that mounting bolts do not enter case more than 1/4".

Electrical Connections

Electrical connections to the unit are made using several terminals and removable connectors located on the back of the unit. The unit is protected by a 20 amp fuse on the input power and each output is protected by a 20 amp fuse. Wiring diagrams on pages 36 and 39 show detail of how to wire the siren to the vehicle and its various accessories.



Wire Size and Termination

Please review pages 34 and 39 to determine the minimum wire size used for each connection. Please also use the following guidelines when wiring your siren:

- Use only high quality crimp connectors.
- Make sure all connections are tight.
- Route the wiring to prevent wear, overheating, and/or interference with air bag deployment.
- Use grommets and sealant when passing through compartment walls.
- Minimize the number of splices to reduce voltage drop.
- Ground connections can be made to substantial chassis components, but preferably directly to the negative of the vehicle battery.
- Install and check all wiring before connection to vehicle battery.

Wiring Connections

Power (+12VDC) and ground connections are made through several terminal blocks on the back of the siren.

Ground: Make your ground connection using an 8 AWG wire. Connect it to the single terminal located on the left side of the rear of the siren.

Power: Connect +12VDC to *ALL THREE* terminals on the right side of the rear of the unit. Use 8 AWG wires for these connections. The power supply for this unit must be capable of delivering peak currents **up to 150 amps** for adequate short circuit protection and reliable operation (50 amps for the audio functions and up to 100 amps for the additional devices and/or lights you have connected to the outputs). The preferred source is directly at the vehicle battery.

The slide switch, push button switch, and video outputs are all made on a 12-terminal connector (P/N S30041-68). Be sure to use a wire size that is appropriate for the load each will be carrying (see pages 35-39). Connect devices that draw a maximum of 20 amps (+12VDC) per output. (*Please note:* Only 3 amp max for ground-side switched devices). ⚠ ***MAXIMUM COMBINED OUTPUTS SHOULD NOT EXCEED 100 AMPS TOTAL!!!***

⚠ **These connectors are designed to handle a MAXIMUM 12 AWG wire. If your device has a larger wire (i.e. 8 or 10 AWG), solder a short (4") 12 AWG lead onto the end of the wire so that it can properly fit into the connector.**

S30041-68

S30042-135

The chart to the right shows the required wire gauge to be used for each output (1-12) above, based upon the current draw of the light (or device) connected to it and the length of the wire run to the light (or device).

Current (Amps)	10'	20'	25'
2	18 AWG	18 AWG	18 AWG
4	18 AWG	16 AWG	16 AWG
5.5	18 AWG	16 AWG	14 AWG
8	16 AWG	14 AWG	14 AWG
12	16 AWG	12 AWG	12 AWG
14	14 AWG	12 AWG	10 AWG
18	14 AWG	10 AWG	10 AWG
20	12 AWG	10 AWG	8 AWG

Slide Switch: Each of these terminals should be connected to the +12VDC device you would like control led by the slide switch in each corresponding position (①, ②, or ③). ***Do not exceed 20 amps per output.***

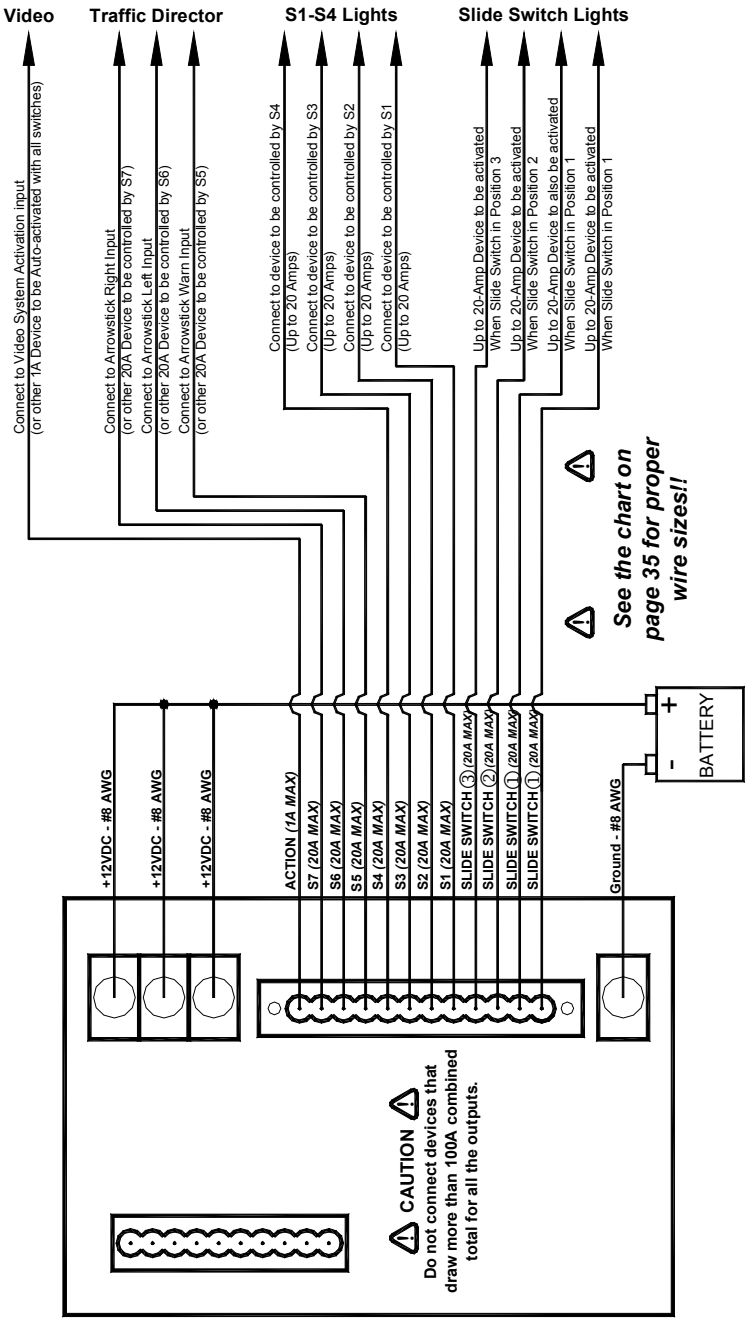
Please note that you can optionally connect ground side switched devices to these terminals. ***For ground-side switched devices, do not exceed 3 amps per output.***

S1-S7: Each of these terminals should be connected to the +12VDC device you would like controlled by the corresponding pushbutton switch. ***Do not exceed 20 amps per output.***

Please note that you can optionally connect ground side switched devices to these terminals. ***For ground-side switched devices, do not exceed 3 amps per output.***

Action: The Action output is generally used to automatically trigger a device (such as a video camera) when any functions on this unit are switched on. While any functions are active, this terminal will output +12 VDC. A device requiring a maximum of 1 amp may be connected to this terminal. Optionally, this output can be set to pulse (see page 29).

Siren Wiring Diagram #1


Video
Traffic Director
S1-S4 Lights
Slide Switch Lights
Connect to Video System Activation input
(or other 1A Device to be Auto-activated with all switches)
Connect to Arrowstick Right Input
(or other 20A Device to be controlled by S7)
Connect to Arrowstick Left Input
(or other 20A Device to be controlled by S6)
Connect to Arrowstick Warn Input
(or other 20A Device to be controlled by S5)
Connect to device to be controlled by S4
(Up to 20 Amps)
Connect to device to be controlled by S3
(Up to 20 Amps)
Connect to device to be controlled by S2
(Up to 20 Amps)
Connect to device to be controlled by S1
(Up to 20 Amps)
Up to 20-Amp Device to be activated
When Slide Switch in Position 3
Up to 20-Amp Device to be activated
When Slide Switch in Position 2
Up to 20-Amp Device to also be activated
When Slide Switch in Position 1
Up to 20-Amp Device to be activated
When Slide Switch in Position 1
+12VDC - #8 AWG
+12VDC - #8 AWG
+12VDC - #8 AWG
ACTION (1A MAX)
S7 (20A MAX)
S6 (20A MAX)
S5 (20A MAX)
S4 (20A MAX)
S3 (20A MAX)
S2 (20A MAX)
S1 (20A MAX)
SLIDE SWITCH ③ (20A MAX)
SLIDE SWITCH ② (20A MAX)
SLIDE SWITCH ① (20A MAX)
SLIDE SWITCH ① (20A MAX)
Ground - #8 AWG
+
-
BATTERY
CAUTION
Do not connect devices that
draw more than 100A combined
total for all the outputs.
See the chart on
page 35 for proper
wire sizes!!

Park/Kill: **(Terminal 1) -** Used for the Park/Kill feature that automatically deactivates the siren (such as when the vehicle is placed in Park or a door is opened). Using an 18 AWG wire, connect this terminal to the dome light, a door switch, or other external switch. By default this wire activates the Park/Kill feature when it receives +12VDC. Optionally, this input can be set to activate the Park/Kill feature when it is grounded (see page 9 of the Installer Selectable Options).

Backlighting: **(Terminal 2) -** This terminal supplies power for the amber backlighting of the faceplate (*faceplate backlighting only, not buttons*). Connect it to +12VDC from the dash lights, parking lights or other switched source. Be sure to use minimum size #18 AWG wire. *Note: The unit will still function without power to this wire. There will not be any backlighting though.*

Radio 1 & Radio 2: **(Terminals 3 & 4) -** Used for radio repeat. Connect one terminal to one output and the other terminal to the other output from the two-way radio (speaker or output connector). This unit has been designed such that polarity is not important. Use #18 AWG wire.

Auxiliary: **(Terminal 5) -** Used for remote Manual (or Air Horn) control. Using an 18 AWG wire, connect to the horn ring circuit or some other remote switch. Typically the Horn wire is disconnected from the Horn and connected to this wire. By default this wire activates the Auxiliary feature when it receives +12VDC. Optionally, this input can be set to activate the AUX feature when it is grounded (see page 9 of the Installer Selectable Options).

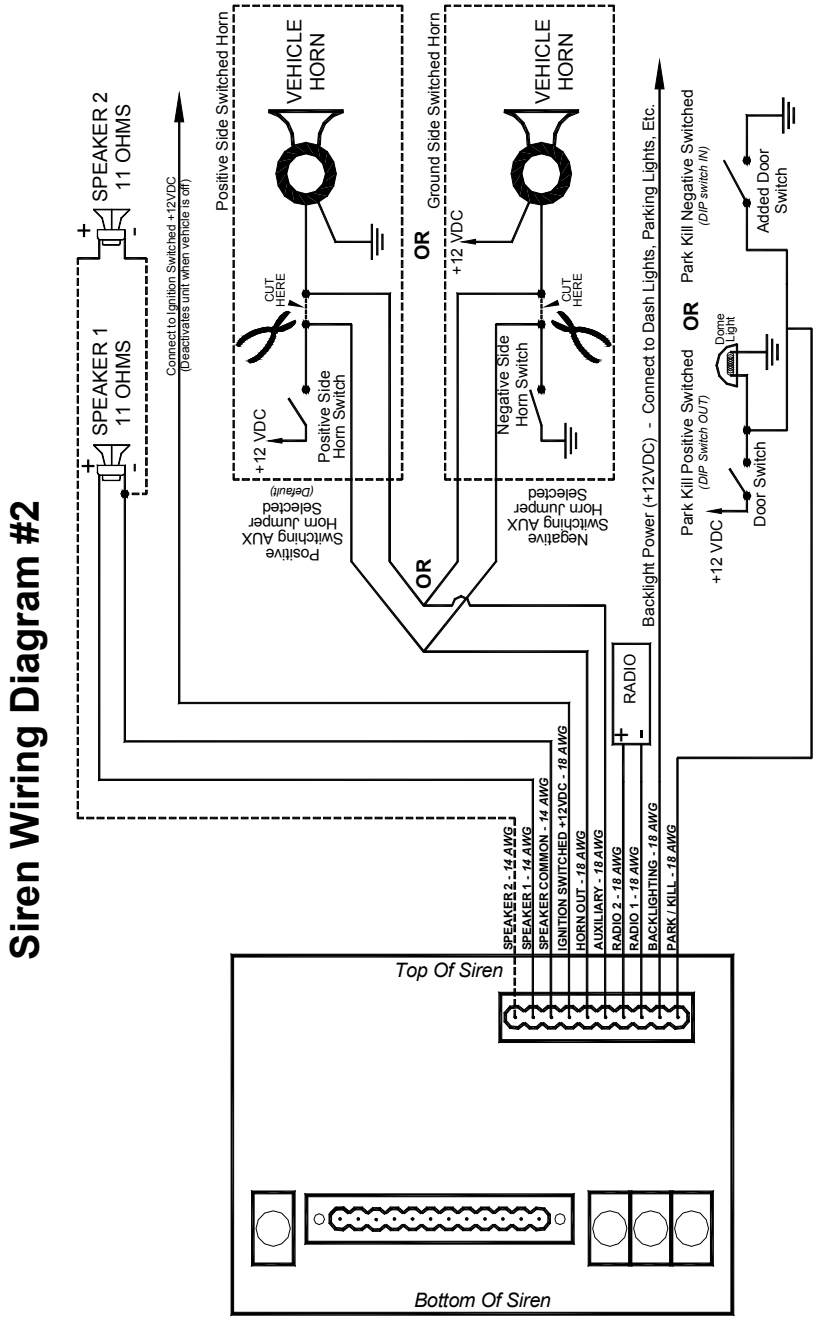
Horn Out: **(Terminal 6) -** If you are using the Auxiliary wire listed above, connect this terminal to the side of your vehicle horn that was disconnected when the horn ring circuit was connected to the AUX wire (see ***Auxiliary*** above). This allows for normal functioning of your vehicle horn when the siren is off. Normal installation of this unit has the vehicle's horn switch disconnected from the horn and routed to the Auxiliary terminal (see the Wiring Diagram on page 39). Use 18 AWG wire.

Ignition Switched: **(Terminal 7) -** Use an 18 AWG wire to connect this terminal to +12VDC through a switched power supply (possibly ignition). This will turn the siren and light controls off when the ignition is off. Be sure to use minimum size #18 AWG wire. ***NOTE:*** *It is NOT recommended that you connect this to constant +12VDC. This wire must have +12VDC applied to it and the On/Off (PA) switch in the "ON" position for the lights and siren to work.*

Speaker Common: **(Terminals 8) -** Connect this output to the negative terminal of your speaker. If you have two speakers, connect this output to the negative terminals from both speakers. Be sure to use minimum 14 AWG wire.

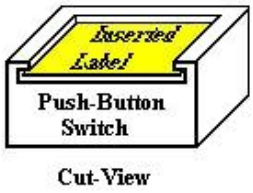
Speaker 1:
Speaker 2: **(Terminal 9 &10) -** Connect the Speaker 1 output to the positive terminal from your first speaker. If you have a second speaker, connect the Speaker 2 terminal to the positive terminal of it. Use a minimum 14 AWG wire.

Siren Wiring Diagram #2



LABEL INSERTION

Once the wire connections have been made to **S1-S7**, labels can be inserted into the switches. The product is shipped with 49 different labels for these push buttons. Select the desired label inserts. Insert the label into each button and tuck it under the lip of the switch.

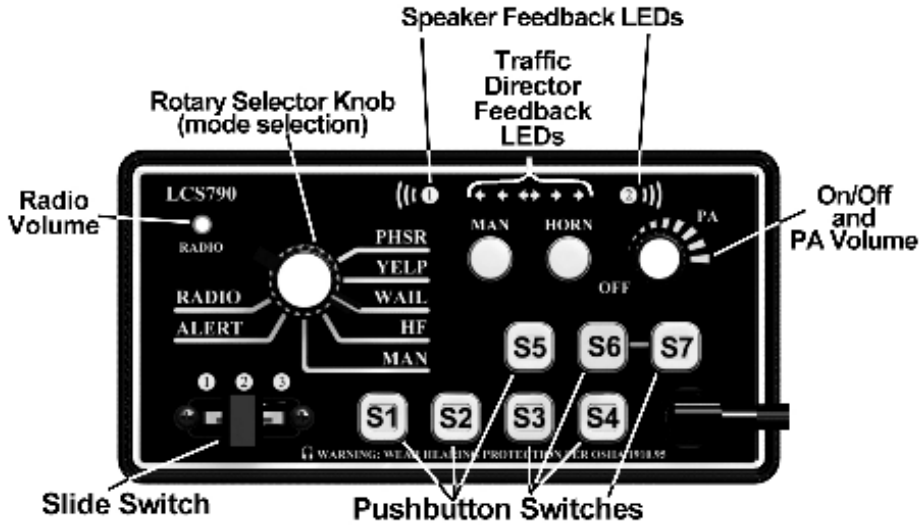


Cut-View

Testing

Test all siren and light functions after installation to assure proper operation. Test vehicle operation to assure no damage to vehicle.

Operation



General

This unit is designed for easy operation under the stress associated with high-speed pursuit. Most siren functions and/or light controls are accessible with one simple motion without repetitive activation of switches or automatic timed switching that can interfere with desired operation.

On/Off

The *On/Off-PA volume control* (PA) will both turn the siren unit on and off, as well as control the public address volume. It is located in the upper right hand corner of the front face. When the unit is not in use, you may elect to leave this switch in the off position. To turn the unit off, rotate the switch counter clockwise until it clicks. This will power down the unit and will prevent accidental activation of any of the controls on the face of the unit. Rotating the knob clockwise will power up the unit. ***THIS SWITCH MUST BE TURNED ON FOR ANY OF THE FUNCTIONS TO WORK.***

Selector Switch (Rotary Knob)

Whenever you turn the unit on by rotating the PA button clockwise, the rotary selector switch will control the primary operating function of the siren.

PHSR - *(Phaser)* Ultra-fast changing tone used for maximum attention.

YELP - A rapidly changing tone used in congested areas.

WAIL - A slower changing tone used on highways.

HF - *(Hands Free, also known as Horn Ring Cycler)* allows the user to cycle through Wail, Yelp, and Phaser by repeatedly pressing the horn or other switch connected to the AUX input.

MAN - *(Manual)* A silent mode that allows push-button Manual, push-button Horn, and Public Address operation. The siren output *winds down* when the MAN button is released, or can optionally sweep tones (see the ***Detailed Programming*** section on page 17).

ALERT - A silent mode that allows push-button Manual, push-button Horn and Public Address operation. The difference between this mode and the Manual mode is that in this mode the siren output *terminates immediately* when the MAN button is released.

RADIO - Also known as Radio Repeat, this function amplifies a radio speaker input for re-broadcast outside the vehicle. The PA remains functional, but no siren tones are available in this position.

Slide Switch

The slide switch is designed for quick pursuit mode operation. The far left position (OFF) will not activate any outputs. Using the default settings, Position ① will activate any lights or devices connected to Terminals 1 and 2 of the 12-terminal connector *(see pages 35-36)*. By default, position ② activates any lights or devices connected to Terminals 1, 2, and 3 of the 12-terminal connector *(see pages 35-36)*. By default, position ③ activates all of the lights or devices connected to Terminals 1, 2, 3, and 4 of the 12-terminal connector, along with the siren *(see pages 35-36)*. Each slide switch output is protected with a 20A fuse.

Pursuit Mode - Position ③ (farthest right) is generally used for the full pursuit mode. It allows for a quick procedure that will activate both the lights and the siren in one motion. When the slide switch is moved to Position ③, all of the lights or devices connected to Terminals 1, 2, 3, and 4 will turn on and the siren will activate into the Wail mode.

Please review the ***Detailed Programming*** section *(pages 9-31)* for instruction on how to change several settings related to the slide switch, including:

- Audio Lockout Unless Slide Switch on
- Standby Mode Until Slide Switch Activated
- Change Slide Switch to Non-Progressive Functionality
- Auto activation of Arrowstick
- Auto activation of Siren Tones
- Auto-activation of **S1-S4**

Push Button Switches (S1-S7)

Seven push button switches are provided to operate your external lights or devices. Each push button (**S1-S7**) will control the corresponding item(s) connected to Terminals 5-11 of the 12-terminal connector (see pages 35-36). Each of these seven outputs is protected with a 20A fuse *(see page 46)*.

By default, buttons **S5**, **S6**, and **S7** are designed for use with a ***compatible*** arrowstick (traffic director). **S5** is designated for the Warn Pattern. **S6** is designated for the Left Pattern. **S7** is designated for the Right pattern. Pressing **S6** and the **S7** button at the same time will activate the Center Out pattern. When these buttons are used, the corresponding pattern will display on the LEDs located above the Manual and Air Horn buttons.

In addition, by default, buttons **S5**, **S6**, and **S7** act like radio buttons (when you activate one, it de-activates the other two). If you will **NOT** be connecting **S5-S7** to an arrowstick, you can disable the Arrowstick LED display and allow the buttons to be activated simultaneously. (See page 7 of the ***Installation: DIP Switch Settings***) section.

MAN and HORN Buttons

The front panel of the LCS790 contains two pushbuttons that operate the Manual function and the Air Horn.

MAN – When the selector switch is in the WAIL, YELP or PHSR positions, pressing the MAN button cycles through to a quicker changing tone (see table below). These quicker tones are generally used at intersections and very highly congested areas. Pressing the button once changes to the next faster tone. Pressing it again changes the tone back to original tone. With the selector switch in the MAN, ALERT, or HF position, this switch provides a manually activated Wail siren tone while the button is being held. This can be used in low noise areas or if you wish to momentarily alert motorists.

Optional operation includes replacement of the Phaser tone with Two-Tone (HI/LO) or disabling the Phaser tone entirely (see page 27 of the ***Detailed Programming*** section). These options may be governed by State and/or Local laws.

Rotary Switch in this Position:	***Pressing the MANUAL Push Button Switch Does This:***
PHSR (Phaser)	Toggles the Output to TWO-TONE
YELP	Toggles the Output to PHASER
WAIL	Toggles the Output to YELP
HF (Hands Free)	Creates a manual WAIL tone while button is being held that sweeps down when the button is released.
MAN (Manual)	Creates a manual WAIL tone while button is being held that winds down when the button is released.
ALERT	Creates a manual WAIL tone while button is being held that stops immediately when the button is released.

(NOTE: PHASER and TWO-TONE may be optionally swapped or disabled (see page 27 of the ***Detailed Programming*** section).

HORN – Pressing this button provides a simulated air horn tone. This can be used to either replace, or to supplement the normal vehicle horn and is useful at intersections or in high noise areas. This tone will override all other siren tones.

Volume Controls

The *radio repeat volume* (RADIO) control is recessed in the upper left hand corner of the front face. This should be set when the vehicle is parked. First set the volume level of the vehicle's two-way radio to its normal operating volume. Adjust the siren's rotary selector switch into the Radio position. Insert a small, Phillips Head screwdriver into the RADIO volume adjustment port. Turn clockwise direction to increase the sound level.

The *On/Off-PA volume control* (PA) will both turn the LCS790 unit on and off, as well as control the public address volume. It is located in the upper right hand corner of the front face. When the unit is not in use, you may elect to leave this switch in the OFF position. Turn the switch counter clockwise until it clicks. This will power down the unit and will prevent accidental activation of any of the controls on the face of the unit. Rotating it clockwise will power up the LCS790. As it is turned clockwise, the outside volume of the PA will increase.

Microphone

The attached noise-canceling microphone is used for public address operation and overrides any siren tone when its push-to-talk (button on the side) is pressed.

Speaker Diagnostics

Each speaker has a diagnostic LED. One is located to the left of the arrowstick display LEDs, and the other is to the right. These LEDs will only light up while a tone is trying to be generated.

Status of the speakers are indicated as follows:

Steady - Speaker is connected and operating properly.

Simultaneous Flashing - There is an electrical short in the speaker or wires to the speaker.

Alternating - Incorrect voltage (<10 VDC or >16 VDC).

Off - No speaker is connected, or
- The siren is not activated to output a tone to the speaker, or
- The speaker or wire connection is loose or is electrically open

Auxiliary Input

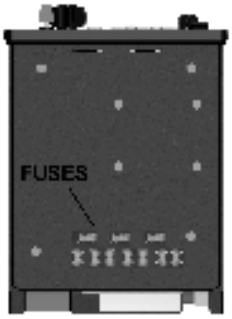
During installation an auxiliary input may be connected to the vehicle horn ring or other switching device. It provides the same operation as pressing the HORN button or optionally the MAN button. (See the ***Installation: Wiring*** section on page 38 for details.)

Park Kill (Cutout)

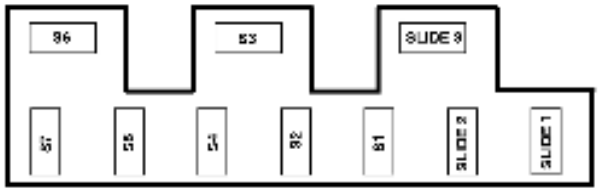
During installation, the Park Kill input may be connected to a door switch. It will automatically turn off any siren tone when the door is opened. The siren tone will continue to be cut off even when the door is closed. Changing any switch or input will restore normal function. (See the ***Installation: Wiring*** section on page 37 for details.)

Fuses

The outputs on this unit are protected by ten 20 Amp automotive type blade fuses. They are located on the bottom of the unit as pictured to the right.



Please review the diagram below to determine which fuse corresponds to which output.



Parts

Part	Description
P30235-24P	Siren Top Mounting Plate
P30234-24P	Siren Bottom Cover
S30041-68	12-Terminal Connector
S30042-135	10-Terminal Connector
P30069-38	Microphone Bracket with Screws
P30056-16	1/4-20 x 3/8" Hex Locking Bolt
P30028-1	20 Amp Automotive Fuse
P30232-1	Noise Cancelling Microphone
P30208-10	Microphone Strain Relief
P30032-8	TIP36C Power Transistor
P30239-1	Rotary Selector Switch Knob
P30239-2	PA Volume Knob
P30147-44	Mounting Bracket
P30050-35	Case Screws

Service

This unit is designed to provide years of reliable service under even the worst conditions. Many times there may appear to be a problem with the unit when the true problem is in the speaker(s) or improper installation. The following chart shows typical symptoms and possible causes.

Troubleshooting

Symptom	Possible Cause	Check
No power	Connector loose	Check connector
	Siren 20A fuse blown	Is power hooked up backwards? Positive ground vehicle?
		Is an external fuse or circuit breaker used?
	Loose connection at power source	Are the negative leads connected to a good ground?
No siren tone - PA works	High voltage protection	The input voltage must be less than 16 volts.
	Low voltage protection	The input must be greater than 10V with the siren turned on.
		Does microphone button release properly?
	Microphone button stuck	Is the PK jumper option properly configured?
	Park Kill polarity option set wrong	Does the siren work when Park Kill input is disconnected?
No siren tone - No sound	Park Kill activated	Check for a short.
	Bad speaker or speaker wiring	Check for an open.
No PA	PA volume not set properly	Have you tried turning the PA volume control?
Distorted siren sound	Speaker assembly loose	Is the speaker bell or tip loose?
	Intermittent Aux. Input connection	Is the Aux. Input (green wire) used and wired properly?
	Low or high vehicle voltage	Input voltage must be between 10 & 16 volts while siren is on.
Intermittent siren tone	High voltage protection	Is the vehicle voltage regulator working properly?
	Low voltage protection	Is the connector tight on the back of the unit?
		Is there a loose connection on a power lead?
		The input must be greater than 10V with the siren turned on.
		Is something lying on the microphone?
	Microphone button activation	Is a circuit breaker used with at least a 50A rating?
	Circuit breaker in supply connection	Does the speaker have water damage, or is a wire pinched?
	Shorted speaker or speaker wire	
Horn function or Manual or Phaser stuck on	Manual or Horn push buttons stuck	Does the switch return fully when released?
	Aux. Input improperly connected	Is the Aux. Input used and wired properly?
	Aux. Input Polarity Option set wrong	Is the AUX jumper option properly configured?
No Radio	Unit not connected to radio	Is the radio connected properly to the unit?
	Radio volume too low	Can you hear the radio in the vehicle?
		Have you tried turning the Radio volume control?
No or Low Radio	Radio outputs not isolated and polarity hooked up backwards	Are the radio wires connected to the correct polarity from the radio output?
Wrong siren tone	Two-Tone option jumper installed	Is the TT jumper option properly configured?
	Aux. Input set to wrong function	Is the AUX jumper option configured properly?
Phaser not working	Phaser disabled	Is the TD jumper option configured properly?

If you have review the chart above and still cannot resolve your issue, please contact our Technical Service department. **When contacting us about a product you have purchased, please have the product's serial number readily available.**

Phone: (585) 226-9025
Fax: (888) 478-2797
www.starheadlight.com

LIMITED WARRANTY

Signal Vehicle Products warrants this new product to be free from defects in material and workmanship, under normal use and service, for a period of one (1) year from the date of delivery to the first user-purchaser.

During this warranty period the obligation of Signal Vehicle Products is limited to repairing or replacing, as Signal Vehicle Products may elect, any part or parts of such product which after examination by Signal Vehicle Products is determined to be defective in material and/or workmanship.

This warranty does not cover labor charges for removal or re-installation of the product. Fuses and lamps are not covered under this warranty.

This warranty does not extend to any unit that has been subjected to abuse, misuse, improper installation or which has not been adequately maintained, nor to units which have problems related to service or modification at any facility other than the manufacturer.

THERE ARE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL SIGNAL VEHICLE PRODUCTS BE LIABLE FOR ANY LOSS OF PROFITS OR ANY INDIRECT OR CONSEQUENTIAL DAMAGES ARISING OUT OF ANY SUCH DEFECT IN MATERIALS OR WORKMANSHIP.

If you have any questions concerning this or any other SVP product, please contact our **Customer Service Department** at (585) 226-9025.

RETURN

If a product must be returned for any reason, please fill out the form on the back of this page, then call 585-226-9025 and ask for the Repair Department. Once the product is deemed defective by us, an RGA number (Returned Goods Authorization Number) will be issued to you. Please write the RGA number in the appropriate box in the form on the back of this page. Please enclose the form with the returned product(s) and write the RGA# clearly on the package near the mailing label. No returns will be allowed for product returns that are not listed on the RGA.

If a problem with this product develops within the warranty period, please contact our Customer Service Department at (585) 226-9025. When contacting us about a product you have purchased, please have the product's serial number readily available. If the product needs to be returned, you will be issued an RGA number (Returned Goods Authorization Number). No returns will be allowed for product returns that are not listed on the RGA. Please fill out the form below and enclose it with the returned product(s).

Returned Goods Authorization Form

MODEL: **LCS790**

Serial No. _____ **RGA Number** _____

Purchase Date / / **Install Date** / /

Customer Name: _____

Company: _____

Address: _____

City: _____ **ST:** _____ **ZIP:** _____

Phone: _____

Briefly Describe the Problem:

_____

_____

_____

_____

Dealer: _____

Installer: _____